1. \*Collect Research Publications Using IoT for Structural Health Monitoring (SHM)\*

For the survey, we will focus on research papers published in the last few years that discuss the application of IoT in SHM. Here’s what we need to identify from each publication:

#### \*(i) What Sensor is Used:\*

- \*Type of Sensors\*: These could include accelerometers, strain gauges, fiber optic sensors, acoustic emission sensors, piezoelectric sensors, etc.

- \*Purpose\*: Understand the specific application, such as detecting vibrations, cracks, temperature, etc.

#### \*(ii) What Controller is Used:\*

- \*Microcontrollers\*: Common controllers include Arduino, Raspberry Pi, ESP32, STM32, etc.

- \*Purpose\*: Identify how the controller processes data and interacts with sensors.

#### \*(iii) What will be the IDE:\*

- \*IDE/Software Environment\*: This could include Arduino IDE, MATLAB, LabVIEW, Python environments, etc.

- \*Purpose\*: Determine the development environment used for programming and testing.

#### \*(iv) What Cloud is Used:\*

- \*Cloud Platforms\*: Commonly used cloud services include AWS IoT, Google Cloud, Microsoft Azure, ThingSpeak, etc.

- \*Purpose\*: Identify where and how the sensor data is stored, processed, and analyzed.

### 2. \*Prepare a Minimum of 3 Questions from the Reference and Discuss\*

Based on the findings from the research publications, here are three example questions you could include in the survey:

\*Question 1\*: Which type of sensors have been most effective for detecting structural anomalies in real-time IoT-based SHM systems?

- \*Discussion\*: This question explores the efficacy of various sensors in detecting issues like vibrations, cracks, or temperature fluctuations in real-time, helping to identify best practices.

\*Question 2\*: How does the choice of microcontroller impact the efficiency of data processing and transmission in SHM systems?

- \*Discussion\*: This question assesses the impact of different microcontrollers on the overall system performance, including data handling and communication with the cloud.

\*Question 3\*: What are the key challenges in integrating cloud services with IoT-based SHM systems, and how can they be mitigated?

- \*Discussion\*: This question targets the integration challenges between IoT devices and cloud platforms, addressing issues like data security, latency, and reliability.

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\*Next Steps:\*

1. \*Literature Review\*: Conduct a literature review to collect and analyze relevant research publications.

2. \*Data Extraction\*: Extract and tabulate data regarding the sensors, controllers, IDEs, and cloud platforms used.

3. \*Survey Preparation\*: Prepare a detailed survey based on the research findings.

Would you like me to assist with the literature review or discuss the topics in more detail?